

**AFFIDAVIT OF HUBBARD, LERH, AND WILLIG**  
**CC DOCKET NO. 96-98**

Quality and Reliability of Telecommunication Infrastructure (editor), Hillsdale, NJ: Lawrence Erlbaum Associates, 1995.

“The Quality of Complex Systems and Industry Structure”, with Nicholas Economides, in Quality and Reliability of Telecommunication Infrastructure, edited by William Lehr, Hillsdale, NJ: Lawrence Erlbaum Associates, 1995.

“Repeated Contract Negotiations with Private Information: Comment,” Japan and the World Economy, 7(4), November 1995, pages 473-74.

“Quality Choices in a Network of Networks”, in *Private Networks and Public Objectives*, edited by E. Noam and A. NíShúilleabháin, North Holland: New York, 1996.

“ISDN in the U.S.A.: Is it Arriving at Last?”, in *ISDN: An International Comparison of Trends in the USA, Japan, Singapore and Europe*, Final Report to the ISDN Commission of North Rhine-Westphalia, May 1996.

“Compatibility Standards and the Internet”, working paper, September 1992.

“Standardization: Understanding the Process”, Journal of the American Society for Information Science, vol 43, no 8 (September 1992) 550-555.

“Voluntary Standard Setting, Institutions and the Allocation of Technical Capabilities”, working paper, July 1992.

“ISDN and the Small User: Regulatory Policy Issues”, with Roger Noll, in Integrated Broadband Networks: the Public Policy Issues, edited by Martin Elton, North-Holland, New York, 1991, 147-178.

“Incremental Costs and the Efficient Pricing of Local Exchange Services: A Synopsis of the Incremental Cost Conference”, Center for Economic Policy Research Working Paper #175, Stanford University, January 1990.

“Vertical Integration in the Cable Television Industry: the Issue of Content/Carrier Separation”, WD-5100-MF, RAND Corporation, Santa Monica, CA, August 1990.

“ISDN: an Economists’ Primer to a New Telecommunications Technology”, working paper, February 1989.

“Economics of Anticipatory Standard Setting”, working draft, presented at the European Association of Research in Industrial Economics (E.A.R.I.E.) Conference, Chania, Crete, September 1994.

“Political Economics of Voluntary Standard Setting”, working draft, January 1992.

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## **ATTACHMENT 3**

**AFFIDAVIT OF HUBBARD, LERH, AND WILLIG  
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**Curriculum Vitae**

**Name:** Robert D. Willig

**Address:** 220 Ridgeview Road, Princeton, New Jersey 08540

**Birth:** 1/16/47; Brooklyn, New York

**Marital Status:** Married, four children

**Education:** Ph.D. Economics, Stanford University, 1973  
Dissertation: Welfare Analysis of Policies  
Affecting Prices and Products.  
Advisor: James Rosse

M.S. Operations Research, Stanford University, 1968.

A.B. Mathematics, Harvard University, 1967.

**Professional Positions:**

Professor of Economics and Public Affairs, Princeton University, 1978-.

Principal External Advisor, Infrastructure Program, Inter-American Development Bank, 6/97-8/98.

Deputy Assistant Attorney General, U.S. Department of Justice, 1989-1991.

Supervisor, Economics Research Department, Bell Laboratories, 1977-1978.

Visiting Lecturer (with rank of Associate Professor), Department of Economics and Woodrow Wilson School, Princeton University, 1977-78 (part time).

Economics Research Department, Bell Laboratories, 1973-77.

Lecturer, Economics Department, Stanford University, 1971-73.

**Other Professional Activities:**

Advisory Board, Electronic Journal of Industrial Organization and Regulation Abstracts, 1996-.

**AFFIDAVIT OF HUBBARD, LERH, AND WILLIG**  
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Visiting Faculty Member (occasional), International Program on Privatization and Regulatory Reform, Harvard Institute for International Development, 1996-.

Member, National Research Council Highway Cost Allocation Study Review Committee, 1995-.

Member, Defense Science Board Task Force on the Antitrust Aspects of Defense Industry Consolidation, 1993-94.

Editorial Board, Utilities Policy, 1990-

Leif Johanson Lecturer, University of Oslo, November 1988.

Member, New Jersey Governor's Task Force on Market-Based Pricing of Electricity, 1987-89.

Co-editor, Handbook of Industrial Organization, 1984-89.

Associate Editor, Journal of Industrial Economics, 1984-89.

Director, Consultants in Industry Economics, Inc., 1983-89, 1991-94.

Fellow, Econometric Society, 1981-.

Organizing Committee, Carnegie-Mellon-N.S.F. Conference on Regulation, 1985.

Board of Editors, American Economic Review, 1980-83.

Nominating Committee, American Economic Association, 1980-1981.

Research Advisory Committee, American Enterprise Institute, 1980-1986.

Editorial Board, M.I.T. Press Series on Government Regulation of Economic Activity, 1979-93.

Program Committee, 1980 World Congress of the Econometric Society.

Program Committee, Econometric Society, 1979, 1981, 1985.

Organizer, American Economic Association Meetings: 1980, 1982.

American Bar Association Section 7 Clayton Act Committee, 1981.

**AFFIDAVIT OF HUBBARD, LERH, AND WILLIG  
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Principal Investigator, NSF grant SOC79-0327, 1979-80; NSF grant 285-6041, 1980-82; NSF grant SES-8038866, 1983-84, 1985-86.

Aspen Task Force on the Future of the Postal Service, 1978-80.

Organizing Committee of Sixth Annual Telecommunications Policy Research Conference, 1977-78.

Visiting Fellow, University of Warwick, July 1977.

Institute for Mathematical Studies in the Social Sciences, Stanford University, 1975.

Consulting: Bell Laboratories, 1978-79; AT&T, 1978-89, 1991-; Conrail 1978-87, 1991-97; Federal Trade Commission, 1979-82, 1994-96; Pennsylvania Bell, 1980; Simpson Thatcher Bartlett, 1980, 1993-98; American Association of Railroads, 1981, 1985; Math-tech, 1981; Union Pacific Railroad, 1981, 1995-; Family Lines Rail System, 1982; Pepper, Hamilton, and Scheetz, 1981-87, 1991-98; Siemens Corp., 1982; Board of Governors of U. S. Postal Service, 1981; OECD, 1983-85, 1991-95; Sidley & Austin, 1983-89, 1991-98; U.S. Postal Service, 1983-84; Echlin Inc., 1982-83; United Airlines, 1983, 1991-98; Consultants in Industry Economics, 1983-89, 1991-; Wiley, Malehorn & Sirota, 1983-89; City of Newark, 1984; Arnold & Porter, 1986-89, 1991-; Howrey & Simon, 1985-88, 1993-; Kodak, 1987-89; Crowell & Moring, 1988; Viacom 1989, 1991-98; Bell Atlantic, 1991-94; Intel, 1991-93; AOPL, 1993; IBM, 1993-96; Merck, 1993-1995; Harkins Cunningham, 1993-96; Boeing, 1993-98; Niagra Mohawk, 1994; PSE&G, 1994-1996; Microsoft, 1994; Coca-Cola Co., 1994-; Digital Equipment Corp. 1997-98; World Bank 1994-; Inter-American Development Bank, 1997-; Air Transport Association of America, 1998.

**Published Articles and Book Chapters:**

**"ECONOMIC PRINCIPLES TO GUIDE POST-PRIVATIZATION GOVERNANCE,"  
FORTHCOMING IN CAN PRIVATIZATION DELIVER? INFRASTRUCTURE FOR  
LATIN AMERICA, R. WILLIG CO-EDITOR, JOHNS HOPKINS PRESS, 1999.**

"Access and Bundling in High-Technology Markets," (with J. A. Ordover), forthcoming in Competition, Convergence and the Microsoft Monopoly, T. Lenard editor.

"Competitive Rail Regulation Rules: Should Price Ceilings Constrain Final Products or Inputs?," (With W. J. Baumol), Journal of Transport Economics and Policy, Vol. 33, Part 1, pp. 1-11.

"Economic Effects of Antidumping Policy," Brookings Trade Forum, 1998, 19-41.

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"Consumer's Surplus Without Apology," reprinted in Readings in Microeconomic Theory, M. M. La Manna (ed.), Dryden Press, 1997, pp. 201-212.

"Interview With Economist Robert D. Willig," Antitrust, Vol. 11, No. 2, Spring 1997, pp. 11-15.

"Parity Pricing and its Critics: A Necessary Condition for Efficiency in Provision of Bottleneck Services to Competitors," (with W. J. Baumol and J. A. Ordover), Yale Journal on Regulation, Vol. 14, No. 1, Winter 1997, pp. 145-164.

"Restructuring Regulation of the Rail Industry," (with Ioannis Kessides), in Private Sector, Quarterly No. 4, September 1995, pp. 5 - 8. Reprinted in Viewpoint, October, 1995, The World Bank. Reprinted in Private Sector, special edition: Infrastructure, June 1996.

"Competition and Regulation in the Railroad Industry," (with Ioannis Kessides), in Regulatory Policies and Reform: A Comparative Perspective, C. Frischtak (ed.), World Bank, 1996.

"Economic Rationales for the Scope of Privatization," (with Carl Shapiro), reprinted in The Political Economy of Privatization and Deregulation, E. E. Bailey and J. R. Pack (eds.), The International Library of Critical Writings in Economics, Edward Elgar Publishing Co., 1995, pp. 95-130.

"Weak Invisible Hand Theorems on the Sustainability of Multi-product Natural Monopoly," (with W. Baumol and E. Bailey), reprinted in The Political Economy of Privatization and Deregulation, E. E. Bailey and J. R. Pack (eds.), The International Library of Critical Writings in Economics, Edward Elgar Publishing Co., 1995, pp. 245-260.

"Economists' View: The Department of Justice Draft Guidelines for the Licensing and Acquisition of Intellectual Property," (with J. Ordover), Antitrust, V. 9, No. 2 (spring 1995), 29-36.

"Public Versus Regulated Private Enterprise," in Proceedings of the World Bank Annual Conference on Development Economics 1993, L. Summers (ed.), The World Bank, 1994.

"Economics and the 1992 Merger Guidelines: A Brief Survey," (with J. Ordover), Review of Industrial Organization, V. 8, No. 2, (1993), pp. 139-150.

"The Role of Sunk Costs in the 1992 Guidelines' Entry Analysis," Antitrust, V. 6, No. 3 (summer 1992).

"Antitrust Lessons from the Airlines Industry: The DOJ Experience," Antitrust Law Journal, V. 60, No. 2 (1992).

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"William J. Baumol," (with E. E. Bailey), in New Horizons in Economic Thought: Appraisals of Leading Economists, W. J. Samuels (ed.), Edward Elgar, 1992.

"Anti-monopoly Policies and Institutions," in The Emergence of Market Economies in Eastern Europe, Christopher Clague and Gordon Rausser (eds.), Basil Blackwell, 1992.

"Economics and the 1992 Merger Guidelines," (with Janusz Ordover), in Collaborations Among Competitors: Antitrust Policy and Economics, Eleanor Fox and James Halverson (eds.), American Bar Association, 1992.

"On the Antitrust Treatment of Production Joint Ventures," (with Carl Shapiro), reprinted in Collaborations Among Competitors: Antitrust Policy and Economics, Eleanor Fox and James Halverson (eds.), American Bar Association, 1992.

"Merger Analysis, Industrial Organization Theory, and Merger Guidelines," Brookings Papers on Economic Activity -- Microeconomics 1991, pp. 281-332.

"On the Antitrust Treatment of Production Joint Ventures," (with C. Shapiro), Journal of Economic Perspectives, Vol. 4, No. 3, Summer 1990, pp. 113-130.

"Economic Rationales for the Scope of Privatization," (with Carl Shapiro), in The Political Economy of Public Sector Reform and Privatization, E.N. Suleiman and J. Waterbury (eds.), Westview Press, Inc., 1990, pp. 55-87.

"Contestable Market Theory and Regulatory Reform," in Telecommunications Deregulation: Market Power and Cost Allocation, J.R. Allison and D.L. Thomas (eds.), Ballinger, 1990.

"Address To The Section," Antitrust Law Section Symposium, New York State Bar Association, 1990.

"Price Caps: A Rational Means to Protect Telecommunications Consumers and Competition," (with W. Baumol), Review of Business, Vol. 10, No. 4, Spring 1989, pp. 3-8.

"U.S.-Japanese VER: A Case Study from a Competition Policy Perspective," (with M. Dutz) in The Costs of Restricting Imports, The Automobile Industry. OECD, 1988.

"Contestable Markets," in The New Palgrave: A Dictionary of Economics, J. Eatwell, M. Milgate, and P. Newman (eds.), 1987.

"Do Entry Conditions Vary Across Markets: Comments," Brookings Papers on Economic Activity, 3 - 1987, pp. 872-877.

"Railroad Deregulation: Using Competition as a Guide," (with W. Baumol), Regulation, January/February 1987, Vol. 11, No. 1, pp. 28-36.



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"How Arbitrary is 'Arbitrary'? - or, Toward the Deserved Demise of Full Cost Allocation," (with W. Baumol and M. Koehn), Public Utilities Fortnightly, September 1987, Vol. 120, No. 5, pp. 16-22.

"Contestability: Developments Since the Book," (with W. Baumol), Oxford Economic Papers, December 1986, pp. 9-36.

"The Changing Economic Environment in Telecommunications: Technological Change and Deregulation," in Proceedings from the Telecommunications Deregulation Forum; Karl Eller Center, 1986.

"Perspectives on Mergers and World Competition," (with J. Ordover), in Antitrust and Regulation, R.E. Grieson (ed.), Lexington, 1986.

"On the Theory of Perfectly Contestable Markets," (with J. Panzar and W. Baumol), in New Developments in The Analysis of Market Structure, J. Stiglitz and F. Mathewson (eds.), MIT Press, 1986.

"InterLATA Capacity Growth and Market Competition," (with C. Shapiro), in Telecommunications and Equity: Policy Research Issues, J. Miller (ed.), North Holland, 1986.

"Corporate Governance and Market Structure," in Economic Policy in Theory and Practice, A. Razin and E. Sadka (eds.), Macmillan Press, 1986.

"Antitrust for High-Technology Industries: Assessing Research Joint Ventures and Mergers," (with J. Ordover), Journal of Law and Economics, Vol 28(2), May 1985, pp. 311-334.

"Non-Price Anticompetitive Behavior by Dominant Firms Toward the Producers of Complementary Products," (with J. Ordover and A. Sykes), in Antitrust and Regulation, F.M. Fisher (ed.), MIT Press, 1985.

"Telephones and Computers: The Costs of Artificial Separation," (with W. Baumol), Regulation, March/April 1985.

"Transfer Principles in Income Redistribution," (with P. Fishburn), Journal of Public Economics, 25 (1984), pp. 1-6.

"Market Structure and Government Intervention in Access Markets," in Telecommunications Access and Public Policy, A. Baughcam and G. Faulhaber (eds.), 1984.

"Pricing Issues in the Deregulation of Railroad Rates," (with W. Baumol), in Economic Analysis of Regulated Markets: European and U. S. Perspectives, J. Finsinger (ed.), 1983.

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"Local Telephone Pricing in a Competitive Environment," (with J. Ordover), in Telecommunications Regulation Today and Tomorrow, E. Noam (ed.), Harcourt Brace Jovanovich, 1983.

"Economics and Postal Pricing Policy," (with B. Owen), in The Future of the Postal Service, J. Fleishman (ed.), Praeger, 1983.

"Selected Aspects of the Welfare Economics of Postal Pricing," in Telecommunications Policy Annual, Praeger, 1987.

"The Case for Freeing AT&T" (with M. Katz), Regulation, July-Aug. 1983, pp. 43-52.

"Predatory Systems Rivalry: A Reply" (with J. Ordover and A. Sykes), Columbia Law Review, Vol. 83, June 1983, pp. 1150-1166. Reprinted in Corporate Counsel's Handbook - 1984.

"Sector Differentiated Capital Taxation with Imperfect Competition and Interindustry Flows," Journal of Public Economics, Vol. 21, 1983.

"Contestable Markets: An Uprising in the Theory of Industry Structure: Reply," (with W.J. Baumol and J.C. Panzar), American Economic Review, Vol. 73, No. 3, June 1983, pp. 491-496.

"The 1982 Department of Justice Merger Guidelines: An Economic Assessment," (with J. Ordover), California Law Review, Vol. 71, No. 2, March 1983, pp. 535-574. Reprinted in Antitrust Policy in Transition: The Convergence of Law and Economics, E.M. Fox and J.T. Halverson (eds.), 1984.

"Intertemporal Failures of the Invisible Hand: Theory and Implications for International Market Dominance," (with W.J. Baumol), Indian Economic Review, Vol. XVI, Nos. 1 and 2, January-June 1981, pp. 1-12.

"Unfair International Trade Practices," (with J. Ordover and A. Sykes), Journal of International Law and Politics, Vol. 15, No. 2, winter 1983, pp. 323-337.

"Journals as Shared Goods: Reply," (with J. Ordover), American Economic Review, V. 72, No. 3, June 1982, pp. 603-607.

"Herfindahl Concentration, Rivalry, and Mergers," (with J. Ordover and A. Sykes), Harvard Law Review, V. 95, No. 8, June 1982, pp. 1857-1875.

"An Economic Definition of Predation: Pricing and Product Innovation," (with J. Ordover), Yale Law Journal, Vol. 90: 473, December 1981, pp. 1-44.

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“Fixed Costs, Sunk Costs, Entry Barriers, and the Sustainability of Monopoly,” (with W. Baumol), Quarterly Journal of Economics, Vol. 96, No. 3, August 1981, pp. 405-432.

“Social Welfare Dominance,” American Economic Review, Vol. 71, No. 2, May 1981, pp. 200-204.

“Economies of Scope,” (with J. Panzar), American Economic Review, Vol. 72, No. 2, May 1981, pp. 268-272.

“Income-Distribution Concerns in Regulatory Policymaking,” (with E.E. Bailey) in Studies in Public Regulation (G. Fromm, ed.), MIT Press, Cambridge, 1981, pp. 79-118.

“An Economic Definition of Predatory Product Innovation,” (with J. Ordover), in Strategic Predation and Antitrust Analysis, S. Salop (ed.), 1981.

“What Can Markets Control?” in Perspectives on Postal Service Issues, R. Sherman (ed.), American Enterprise Institute, 1980.

“Pricing Decisions and the Regulatory Process,” in Proceedings of the 1979 Rate Symposium on Problems of Regulated Industries, University of Missouri-Columbia Extension Publications, 1980, pp. 379-388.

“The Theory of Network Access Pricing,” in Issues in Public Utility Regulation, H.M. Trebing (ed.), MSU Public Utilities Papers, 1979.

“Customer Equity and Local Measured Service,” in Perspectives on Local Measured Service, J. Baude, et al. (ed.), 1979, pp. 71-80.

“The Role of Information in Designing Social Policy Towards Externalities,” (with J. Ordover), Journal of Public Economics, V. 12, 1979, pp. 271-299.

“Economies of Scale and the Profitability of Marginal-Cost Pricing: Reply,” (with J. Panzar), Quarterly Journal of Economics, Vol. 93, No. 4, November 1979, pp. 743-4.

“Theoretical Determinants of the Industrial Demand for Electricity by Time of Day,” (with J. Panzar) Journal of Econometrics, V. 9, 1979, pp. 193-207.

“Industry Performance Gradient Indexes,” (with R. Dansby), American Economic Review, V. 69, No. 3, June 1979, pp. 249-260.

“The Economic Gradient Method,” (with E. Bailey), American Economic Review, Vol. 69, No. 2, May 1979, pp. 96-101.

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"Multiproduct Technology and Market Structure," American Economic Review, Vol. 69, No. 2, May 1979, pp. 346-351.

"Consumer's Surplus Without Apology: Reply," American Economic Review, Vol. 69, No. 3, June 1979, pp. 469-474.

"Decisions with Estimation Uncertainty," (with R. Klein, D. Sibley, and L. Rafsky), Econometrica, V. 46, No. 6, November 1978, pp. 1363-1388.

"Incremental Consumer's Surplus and Hedonic Price Adjustment," Journal of Economic Theory, V. 17, No. 2, April 1978, pp. 227-253.

"Recent Theoretical Developments in Financial Theory: Discussion," The Journal of Finance, V. 33, No. 3, June 1978, pp. 792-794.

"The Optimal Provision of Journals Qua Sometimes Shared Goods," (with J. Ordover), American Economic Review, V. 68, No. 3, June 1978, pp. 324-338.

"On the Comparative Statics of a Competitive Industry With Infra-marginal Firms," (with J. Panzar), American Economic Review, V. 68, No. 3, June 1978, pp. 474-478.

"Pareto Superior Nonlinear Outlay Schedules," Bell Journal of Economics, Vol. 9, No. 1, Spring 1978, pp. 56-69.

"Predatoriness and Discriminatory Pricing," in The Economics of Anti-Trust: Course of Study Materials, American Law Institute-American Bar Association, 1978.

"Economies of Scale in Multi-Output Production," (with J. Panzar), Quarterly Journal of Economics, V. 91, No. 3, August 1977, pp. 481-494.

"Weak Invisible Hand Theorems on the Sustainability of Multi-product Natural Monopoly," (with W. Baumol and E. Bailey), American Economic Review, V. 67, No. 3, June 1977, pp. 350-365.

"Free Entry and the Sustainability of Natural Monopoly," (with J. Panzar), Bell Journal of Economics, Spring 1977, pp. 1-22.

"Risk Invariance and Ordinally Additive Utility Functions," Econometrica, V. 45, No. 3, April 1977, pp. 621-640.

"Ramsey-Optimal Pricing of Long Distance Telephone Services," (with E. Bailey), in Pricing in Regulated Industries, Theory and Application, J. Wenders (ed.), Mountain State Telephone and Telegraph Co., 1977, pp. 68-97.

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**CC DOCKET NO. 96-98**

“Network Externalities and Optimal Telecommunications Pricing: A Preliminary Sketch,” (with R. Klein), in Proceedings of Fifth Annual Telecommunications Policy Research Conference, Volume II, NTIS, 1977, pp. 475-505.

“Otsenka ekonomicheskoi effektivnosti proizvodstvennoi informatsii” [“The Evaluation of the Economic Benefits of Productive Information”] in Doklady Sovetskikh i Amerikanskikh Spetsialistov Predstavlenye na Pervyi Sovetsko-Amerikanskii Simpozium po Ekonomicheskoi Effektivnosti Informat sionnogo Obsluzhivaniia [Papers of Soviet and American Specialists Presented at the First Soviet- American Symposium on Costs and Benefits of Information Services], All Soviet Scientific Technical Information Center, Moscow, 1976.

“Vindication of a ‘Common Mistake’ in Welfare Economics,” (with J. Panzar), Journal of Political Economy, V. 84, No. 6, December 1976, pp. 1361-1364.

“Consumer’s Surplus Without Apology,” American Economic Review, V. 66, No. 4, September 1976, pp. 589-597.

**Books**

**CAN PRIVATIZATION DELIVER? INFRASTRUCTURE FOR LATIN AMERICA, R. WILLIG CO-EDITOR, JOHNS HOPKINS PRESS, FORTHCOMING 1999.**

Handbook of Industrial Organization, (edited with R. Schmalensee), North Holland Press, Volumes 1 and 2, 1989.

Contestable Markets and the Theory of Industry Structure, (with W.J. Baumol and J.C. Panzar), Harcourt Brace Jovanovich, 1982. Second Edition, 1989.

Welfare Analysis of Policies Affecting Prices and Products, Garland Press, 1980.

**Unpublished Reports:**

“The Scope of Competition in Telecommunications” (with B. Douglas Bernheim)

“Why Do Christie and Schultz Infer Collusion From Their Data?,” (with Alan Kleidon), 1995.

“Economic Foundations for Vertical Merger Guidelines,” (with B. Douglas Bernheim), 1994.

“Demonopolization,” (with Sally Van Siclen), OECD Vienna Seminar Paper, 1993.

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**CC DOCKET NO. 96-98**

“Economic Analysis of Section 337: The Balance Between Intellectual Property Protection and Protectionism,” (with J. Ordovery) 1990.

“Privatization to Limit Public Sector Discretion,” (with Carl Shapiro) 1989.

“Arming Decisions Under Asymmetric Information,” 1989.

“Regulation of Information Services,” 1987.

“The Effects of Capped NTS Charges on Long Distance Competition,” (with M. Katz).

“The Revolution in Telephone Communications Policy.”

“Discussion of Regulatory Mechanism Design in the Presence of Research Innovation, and Spillover Effects,” 1987.

“Industry Economic Analysis in the Legal Arena,” 1987.

“Deregulation of Long Distance Telephone Services: A Public Interest Assessment,” (with M. Katz).

“Competition-Related Trade Issues,” report prepared for OECD.

“Herfindahl Concentration Index,” (with J. Ordovery), Memorandum for ABA Section 7 Clayton Act Committee, Project on Revising the Merger Guidelines, March 1981.

“Market Power and Market Definition,” (with J. Ordovery), Memorandum for ABA Section 7 Clayton Act Committee, Project on Revising the Merger Guidelines, May 1981.

“The Continuing Need for and National Benefits Derived from the REA Telephone Loan Programs - An Economic Assessment,” 1981.

“The Economics of Equipment Leasing: Costing and Pricing,” 1980.

“Rail Deregulation and the Financial Problems of the U.S. Railroad Industry,” (with W.J. Baumol), report prepared under contract to Conrail, 1979.

“Price Indexes and Intertemporal Welfare,” Bell Laboratories Economics Discussion Paper, 1974.

“Consumer’s Surplus: A Rigorous Cookbook,” Technical Report #98, Economics Series, I.M.S.S.S., Stanford University, 1973.

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“An Economic-Demographic Model of the Housing Sector,” (with B. Hickman and M. Hinz), Center for Research in Economic Growth, Stanford University, 1973.

**Invited Conference Presentations:**

Economic Development Institute of the World Bank -- Program on Competition Policy “Policy Towards Horizontal Mergers”	1998
Twenty-fifth Anniversary Seminar for the Economic Analysis Group of the Department of Justice “Market Definition in Antitrust Analysis”	1998
HIID International Workshop on Privatization, Regulatory Reform and Corporate Governance “Infrastructure Architecture and Regulation: Railroads”	1998
EU Committee Competition Conference – Market Power “US/EC Perspective on Market Definition”	1998
Federal Trade Commission Roundtable “Antitrust Policy for Joint Ventures”	1998
1998 Antitrust Conference “Communications Mergers”	1998
The Progress and Freedom Foundation Conference on Competition, Convergence, and the Microsoft Monopoly “Access and Bundling in High-Technology Markets”	1998
FTC Program on The Effective Integration of Economic Analysis into Antitrust Litigation “The Role of Economic Evidence and Testimony”	1997
FTC Hearings on Classical Market Power in Joint Ventures “Microeconomic Analysis and Guidelines”	1997
World Bank Economists' Week IV “Making Markets More Effective With Competition Policy”	1997
Brookings Trade Policy Forum “Competition Policy and Antidumping: The Economic Effects”	1997

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University of Malaya and Harvard University Conference on The Impact of Globalisation and Privatisation on Malaysia and Asia in the Year 2020 "Microeconomics, Privatization, and Vertical Integration"	1997
ABA Section of Antitrust Law Conference on The Telecommunications Industry "Current Economic Issues in Telecommunications"	1997
Antitrust 1998: The Annual Briefing "The Re-Emergence of Distribution Issues"	1997
Inter-American Development Bank Conference on Private Investment, Infrastructure Reform and Governance in Latin America & the Caribbean "Economic Principles to Guide Post-Privatization Governance"	1997
Harvard Forum on Regulatory Reform and Privatization of Telecommunications in the Middle East "Privatization: Methods and Pricing Issues"	1997
American Enterprise Institute for Public Policy Research Conference "Discussion of Local Competition and Legal Culture"	1997
Harvard Program on Global Reform and Privatization of Public Enterprises "Infrastructure Privatization and Regulation: Freight"	1997
World Bank Competition Policy Workshop "Competition Policy for Entrepreneurship and Growth"	1997
Eastern Economics Association Paul Samuelson Lecture "Bottleneck Access in Regulation and Competition Policy"	1997
ABA Annual Meeting, Section of Antitrust Law "Antitrust in the 21st Century: The Efficiencies Guidelines"	1997
Peruvian Ministry of Energy and Mines Conference on Regulation of Public Utilities "Regulation: Theoretical Context and Advantages vs. Disadvantages"	1997
The FCC: New Priorities and Future Directions "Competition in the Telecommunications Industry"	1997
American Enterprise Institute Studies in Telecommunications Deregulation "The Scope of Competition in Telecommunications"	1996
George Mason Law Review Symposium on Antitrust in the Information Revolution "Introduction to the Economic Theory of Antitrust and Information"	1996



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Korean Telecommunications Public Lecture "Market Opening and Fair Competition"	1996
Korea Telecommunications Forum "Desirable Interconnection Policy in a Competitive Market"	1996
European Association for Research in Industrial Economics Annual Conference "Bottleneck Access: Regulation and Competition Policy"	1996
Harvard Program on Global Reform and Privatization of Public Enterprises "Railroad and Other Infrastructure Privatization"	1996
FCC Forum on Antitrust and Economic Issues Involved with InterLATA Entry "The Scope of Telecommunications Competition"	1996
Citizens for a Sound Economy Policy Watch on Telecommunications Interconnection "The Economics of Interconnection"	1996
World Bank Seminar on Experiences with Corporatization "Strategic Directions of Privatization"	1996
FCC Economic Forum on the Economics of Interconnection "Lessons from Other Industries"	1996
ABA Annual Meeting, Section of Antitrust Law "The Integration, Disintegration, and Reintegration of the Entertainment Industry"	1996
Conference Board: 1996 Antitrust Conference "How Economics Influences Antitrust and Vice Versa"	1996
Antitrust 1996: A Special Briefing "Joint Ventures and Strategic Alliances"	1996
New York State Bar Association Section of Antitrust Law Winter Meeting "Commentary on Horizontal Effects Issues"	1996
FTC Hearings on the Changing Nature of Competition in a Global and Innovation-Driven Age "Vertical Issues for Networks and Standards"	1995
Wharton Seminar on Applied Microeconomics "Access Policies with Imperfect Regulation"	1995

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Antitrust 1996, Washington D.C.	
"Assessing Joint Ventures for Diminution of Competition"	1995
ABA Annual Meeting, Section of Antitrust Law	
"Refusals to Deal -- Economic Tests for Competitive Harm"	1995
FTC Seminar on Antitrust Enforcement Analysis	
"Diagnosing Collusion Possibilities"	1995
Philadelphia Bar Education Center: Antitrust Fundamentals	
"Antitrust--The Underlying Economics"	1995
Vanderbilt University Conference on Financial Markets	
"Why Do Christie and Schultz Infer Collusion From Their Data?"	1995
ABA Section of Antitrust Law Chair's Showcase Program	
"Discussion of Telecommunications Competition Policy"	1995
Conference Board: 1995 Antitrust Conference	
"Analysis of Mergers and Joint Ventures"	1995
ABA Conference on The New Antitrust: Policy of the '90s	
"Antitrust on the Super Highways/Super Airways"	1994
ITC Hearings on The Economic Effects of Outstanding Title VII Orders	
"The Economic Impacts of Antidumping Policies"	1994
OECD Working Conference on Trade and Competition Policy	
"Empirical Evidence on The Nature of Anti-dumping Actions"	1994
Antitrust 1995, Washington D.C.	
"Rigorous Antitrust Standards for Distribution Arrangements"	1994
ABA -- Georgetown Law Center: Post Chicago-Economics: New Theories - New Cases?	
"Economic Foundations for Vertical Merger Guidelines"	1994
Conference Board: Antitrust Issues in Today's Economy	
"New Democrats, Old Agencies: Competition Law and Policy"	1994
Federal Reserve Board Distinguished Economist Series	
"Regulated Private Enterprise Versus Public Enterprise"	1994
Institut d'Etudes Politiques de Paris	
"Lectures on Competition Policy and Privatization"	1993

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Canadian Bureau of Competition Policy Academic Seminar Series, Toronto.  
"Public Versus Regulated Private Enterprise" 1993

CEPS Symposium on The Clinton Administration: A Preliminary Report Card  
"Policy Towards Business" 1993

Columbia Institute for Tele-Information Conference on Competition in Network Industries, New York, NY  
"Discussion of Deregulation of Networks: What Has Worked and What Hasn't" 1993

World Bank Annual Conference on Development Economics  
"Public Versus Regulated Private Enterprise" 1993

Center for Public Utilities Conference on Current Issues Challenging the Regulatory Process, Santa Fe, NM  
"The Economics of Current Issues in Telecommunications Regulation" 1992  
"The Role of Markets in Presently Regulated Industries" 1992

The Conference Board's Conference on Antitrust Issues in Today's Economy, New York, NY  
"Antitrust in the Global Economy" 1992  
"Monopoly Issues for the '90s" 1993

Columbia University Seminar on Applied Economic Theory, New York, NY  
"Economic Rationales for the Scope of Privatization" 1992

Howrey & Simon Conference on Antitrust Developments, Washington, DC  
"Competitive Effects of Concern in the Merger Guidelines" 1992

Arnold & Porter Colloquium on Merger Enforcement, Washington, DC  
"The Economic Foundations of the Merger Guidelines" 1992

American Bar Association, Section on Antitrust Law Leadership Council Conference, Monterey, CA  
"Applying the 1992 Merger Guidelines" 1992

OECD Competition Policy Meeting, Paris, France  
"The Economic Impacts of Antidumping Policy" 1992

Center for Public Choice Lecture Series, George Mason University Arlington, VA  
"The Economic Impacts of Antidumping Policy" 1992

Brookings Institution Microeconomics Panel, Washington, DC,

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“Discussion of the Evolution of Industry Structure”	1992
AT&T Conference on Antitrust Essentials	
“Antitrust Standards for Mergers and Joint Ventures”	1991
ABA Institute on The Cutting Edge of Antitrust: Market Power	
“Assessing and Proving Market Power: Barriers to Entry”	1991
Second Annual Workshop of the Competition Law and Policy Institute of New Zealand	
“Merger Analysis, Industrial Organization Theory, and Merger Guidelines”	1991
“Exclusive Dealing and the <u>Fisher &amp; Paykel</u> Case”	1991
Special Seminar of the New Zealand Treasury	
“Strategic Behavior, Antitrust, and The Regulation of Natural Monopoly”	1991
Public Seminar of the Australian Trade Practices Commission	
“Antitrust Issues of the 1990’s”	1991
National Association of Attorneys General Antitrust Seminar	
“Antitrust Economics”	1991
District of Columbia Bar’s 1991 Annual Convention	
“Administrative and Judicial Trends in Federal Antitrust Enforcement”	1991
ABA Spring Meeting	
“Antitrust Lessons From the Airline Industry”	1991
Conference on The Transition to a Market Economy - Institutional Aspects	
“Anti-Monopoly Policies and Institutions”	1991
Conference Board’s Thirtieth Antitrust Conference	
“Antitrust Issues in Today’s Economy”	1991
American Association for the Advancement of Science Annual Meeting	
“Methodologies for Economic Analysis of Mergers”	1991
General Seminar, Johns Hopkins University	
“Economic Rationales for the Scope of Privatization”	1991
Capitol Economics Speakers Series	
“Economics of Merger Guidelines”	1991
CRA Conference on Antitrust Issues in Regulated Industries	

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“Enforcement Priorities and Economic Principles”	1990
Pepper Hamilton & Scheetz Anniversary Colloquium	
“New Developments in Antitrust Economics”	1990
PLI Program on Federal Antitrust Enforcement in the 90’s	
“The Antitrust Agenda of the 90’s”	1990
FTC Distinguished Speakers Seminar	
“The Evolving Merger Guidelines”	1990
The World Bank Speakers Series	
“The Role of Antitrust Policy in an Open Economy”	1990
Seminar of the Secretary of Commerce and Industrial Development of Mexico	
“Transitions to a Market Economy”	1990
Southern Economics Association	
“Entry in Antitrust Analysis of Mergers”	1990
“Discussion of Strategic Investment and Timing of Entry”	1990
American Enterprise Institute Conference on Policy Approaches to the Deregulation of Network Industries	
“Discussion of Network Problems and Solutions”	1990
American Enterprise Institute Conference on Innovation, Intellectual Property, and World Competition	
“Law and Economics Framework for Analysis”	1990
Banco Nacional de Desenvolvimento Economico Social Lecture	
“Competition Policy: Harnessing Private Interests for the Public Interest”	1990
Western Economics Association Annual Meetings	
“New Directions in Antitrust from a New Administration”	1990
“New Directions in Merger Enforcement: The View from Washington”	1990
Woodrow Wilson School Alumni Colloquium	
“Microeconomic Policy Analysis and Antitrust--Washington 1990”	1990
Arnold & Porter Lecture Series	
“Advocating Competition”	1991
“Antitrust Enforcement”	1990

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ABA Antitrust Section Convention "Recent Developments in Market Definition and Merger Analysis"	1990
Federal Bar Association "Joint Production Legislation: Competitive Necessity or Cartel Shield?"	1990
Pew Charitable Trusts Conference "Economics and National Security"	1990
ABA Antitrust Section Midwinter Council Meeting "Fine-tuning the Merger Guidelines"	1990
"The State of the Antitrust Division"	1991
International Telecommunications Society Conference "Discussion of the Impact of Telecommunications in the UK"	1989
The Economists of New Jersey Conference "Recent Perspectives on Regulation"	1989
Conference on Current Issues Challenging the Regulatory Process "Innovative Pricing and Regulatory Reform"	1989
"Competitive Wheeling"	1989
Conference Board: Antitrust Issues in Today's Economy "Foreign Trade Issues and Antitrust"	1989
McKinsey & Co. Mini-MBA Conference "Economic Analysis of Pricing, Costing, and Strategic Business Behavior"	1989
	1994
Olin Conference on Regulatory Mechanism Design "Revolutions in Regulatory Theory and Practice: Exploring The Gap"	1989
University of Dundee Conference on Industrial Organization and Strategic Behavior "Mergers in Differentiated Product Industries"	1988
Leif Johanson Lectures at the University of Oslo "Normative Issues in Industrial Organization"	1988
Mergers and Competitiveness: Spain Facing the EEC "Merger Policy"	1988
"R&D Joint Ventures"	1988

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New Dimensions in Pricing Electricity "Competitive Pricing and Regulatory Reform"	1988
Program for Integrating Economics and National Security: Second Annual Colloquium "Arming Decisions Under Asymmetric Information"	1988
European Association for Research in Industrial Economics "U.S. Railroad Deregulation and the Public Interest"	1987
"Economic Rationales for the Scope of Privatization"	1989
"Discussion of Licensing of Innovations"	1990
Annenberg Conference on Rate of Return Regulation in the Presence of Rapid Technical Change "Discussion of Regulatory Mechanism Design in the Presence of Research, Innovation, and Spillover Effects"	1987
Special Brookings Papers Meeting "Discussion of Empirical Approaches to Strategic Behavior"	1987
"New Merger Guidelines"	1990
Deregulation or Regulation for Telecommunications in the 1990's "How Effective are State and Federal Regulations?"	1987
Conference Board Roundtable on Antitrust "Research and Production Joint Ventures"	1990
"Intellectual Property and Antitrust"	1987
Current Issues in Telephone Regulation "Economic Approaches to Market Dominance: Applicability of Contestable Markets"	1987
Harvard Business School Forum on Telecommunications "Regulation of Information Services"	1987
The Fowler Challenge: Deregulation and Competition in The Local Telecommunications Market "Why Reinvent the Wheel?"	1986
World Bank Seminar on Frontiers of Economics "What Every Economist Should Know About Contestable Markets"	1986
Bell Communications Research Conference on Regulation and Information "Fuzzy Regulatory Rules"	1986

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Karl Eller Center Forum on Telecommunications "The Changing Economic Environment in Telecommunications: Technological Change and Deregulation"	1986
Railroad Accounting Principles Board Colloquium "Contestable Market Theory and ICC Regulation"	1986
Canadian Embassy Conference on Current Issues in Canadian -- U.S. Trade and Investment "Regulatory Revolution in the Infrastructure Industries"	1985
Eagleton Institute Conference on Telecommunications in Transition "Industry in Transition: Economic and Public Policy Overview"	1985
Brown University Citicorp Lecture "Logic of Regulation and Deregulation"	1985
Columbia University Communications Research Forum "Long Distance Competition Policy"	1985
American Enterprise Institute Public Policy Week "The Political Economy of Regulatory Reform"	1984
MIT Communications Forum "Deregulation of AT&T Communications"	1984
Bureau of Census Longitudinal Establishment Data File and Diversification Study Conference "Potential Uses of The File"	1984
Federal Bar Association Symposium on Joint Ventures "The Economics of Joint Venture Assessment"	1984
Hoover Institute Conference on Antitrust "Antitrust for High-Technology Industries"	1984
NSF Workshop on Predation and Industrial Targeting "Current Economic Analysis of Predatory Practices"	1983
The Institute for Study of Regulation Symposium: Pricing Electric, Gas, and Telecommunications Services Today and for the Future "Contestability As A Guide for Regulation and Deregulation"	1984
University of Pennsylvania Economics Day Symposium "Contestability and Competition: Guides for Regulation and Deregulation"	1984



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Pinhas Sapir Conference on Economic Policy in Theory and Practice "Corporate Governance and Market Structure"	1984
Centre of Planning and Economic Research of Greece "Issues About Industrial Deregulation" "Contestability: New Research Agenda"	1984 1984
Hebrew and Tel Aviv Universities Conference on Public Economics "Social Welfare Dominance Extended and Applied to Excise Taxation"	1983
NBER Conference on Industrial Organization and International Trade "Perspectives on Horizontal Mergers in World Markets"	1983
Workshop on Local Access: Strategies for Public Policy "Market Structure and Government Intervention in Access Markets"	1982
NBER Conference on Strategic Behavior and International Trade "Industrial Strategy with Committed Firms: Discussion"	1982
Columbia University Graduate School of Business, Conference on Regulation and New Telecommunication Networks "Local Pricing in a Competitive Environment"	1982
International Economic Association Roundtable Conference on New Developments in the Theory of Market Structure "Theory of Contestability" "Product Development, Investment, and the Evolution of Market Structures"	1982 1982
N.Y.U. Conference on Competition and World Markets: Law and Economics "Competition and Trade Policy--International Predation"	1982
CNRS-ISPE-NBER Conference on the Taxation of Capital "Welfare Effects of Investment Under Imperfect Competition"	1982
Internationales Institut fur Management und Verwaltung Regulation Conference "Welfare, Regulatory Boundaries, and the Sustainability of Oligopolies"	1981
NBER-Kellogg Graduate School of Management Conference on the Econometrics of Market Models with Imperfect Competition "Discussion of Measurement of Monopoly Behavior: An Application to the Cigarette Industry"	1981
The Peterkin Lecture at Rice University	